

Claims

What is claimed is:

1. A dentin material which is manufactured by
 seeding dental pulp cells in the composite material
containing noncollagenous phosphorylated protein and collagen;
and
 incubating the dental pulp cells.
2. A dentin material which is manufactured by
 seeding dental pulp cells in the composite material
containing noncollagenous phosphorylated protein and collagen;
and
 incubating the dental pulp cells in the medium
containing bone morphogenic protein.
3. A dentin material according to any one of claim 1 or 2
characterized in that a seeding density of the cells is 10^5 to
 10^6 cells/ml.
4. A regenerating dentin placed in a cavity of dental pulp
which is formed by
 seeding dental pulp cells in the composite material
containing noncollagenous phosphorylated protein and collagen;
 incubating the dental pulp cells to differentiate into a
odontoblasts and to proliferate; and
 implanting the odontoblasts into a cavity of dental pulp
with said composite material.
5. A regenerating dentin placed in a cavity of dental pulp
which is formed by
 seeding dental pulp cells in the composite material
containing noncollagenous phosphorylated protein and collagen;
 incubating the dental pulp cells in the medium
containing bone morphogenic protein to differentiate into a
odontoblasts and to proliferate; and
 implanting the odontoblasts into a cavity of dental pulp

with said composite material.

6. A regenerating dentin placed in a cavity of dental pulp which is formed by implanting the composite material containing noncollagenous phosphorylated protein and collagen.

7. A regenerating dentin placed in a cavity of dental pulp which is formed by implanting the composite material containing noncollagenous phosphorylated protein, collagen and bone morphogenic protein.

8. A regenerating dentin according to any one of claims 4 to 7, characterized in that the rate of formation of regenerated dentin by the regenerating dentin material placed in a cavity of dental pulp is over 20% (after 2weeks).

9. A regenerating dentin according to any one of claims 4 to 7, wherein said noncollagenous phosphorylated protein is phosphophoryn, phosvitin, DMP-1 or a mixture thereof.

10. A regenerating dentin according to any one of claims 4 to 7, wherein said noncollagenous phosphorylated protein is chemically cross-linked with the collagen.

11. A regenerating dentin according to any one of claims 4 to 7, wherein said composite material has spongy or gel-like structure which is manufactured by cross-linking the noncollagenous phosphorylated protein to the collagen by using divinyl sulfone or 1-ethyl-3-(3-dimethylaminopropyl)carbodiimide.

12. A regenerating dentin according to any one of claims 4 to 7, wherein said composite material contains at least one or more materials selected from the group consisting of hydroxyapatite, β -TCP, α -TCP, polyglycolic acid, polylactic acid and a derivative thereof.

13. A regenerating dentin according to any one of claims 4 to 7, wherein said collagen is collagen type I.